

## THE 1989 PRESIDENTIAL ADDRESS—PART 2 SOME INTERESTING EUROPEAN SPIDERS

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Since 1992 is nearly upon us I thought it might be useful to discuss some of the interesting spiders which are found in other parts of Europe, mainly in the south since the spiders of northern Europe are much like ours. I will try to give an idea of their behaviour and their appearance in the field.

At the moment spiders are divided into two sub-orders. The Mesothelae with one family, namely the Liphistiidae, are found only in the Far East.

The Opisthothelae have two infraorders, the Mygalomorphae and the Araneomorphae which are separated by the arrangement of the chelicerae and fangs. In Europe they can also be separated by the numbers of book lungs, four in Mygalomorphae and two or in some cases none, in the Araneomorphae. The second pair of book lungs is found behind the epigastric fold and usually shows up as two pale patches. The Hypochilidae, Austrochilidae and Gradungulidae which combine Araneomorph chelicerae with four book lungs are not, and are not likely to be, found in Europe.

In the Araneomorphae the chelicerae open out sideways and so do the fangs. In the Mygalomorphae the chelicerae move up and down and the fangs fold up underneath the chelicerae. The Araneomorphae are generally considered to be more highly developed than the Mygalomorphae.

In Britain we only have one Mygalomorph spider, *Atypus affinis* (Atypidae) which lives in a silk-lined burrow. The silk lining is continued above ground to give a closed sleeve or purse. There are more members of this family in Europe but they are all very similar. One finds the purse web when grubbing in the herbage or when turning stones. Only the males ever leave the burrows.

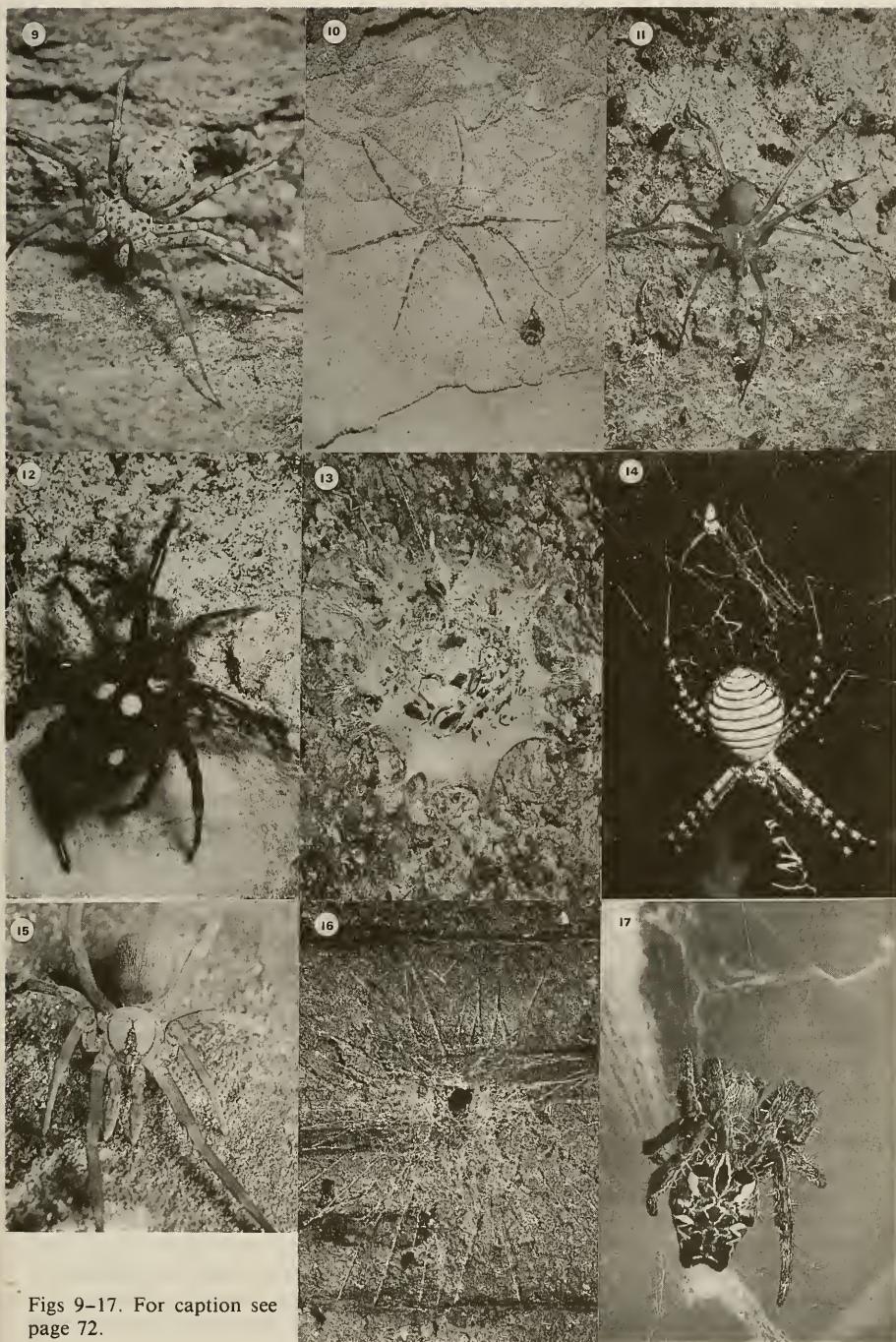
In southern Europe there are five more families of Mygalomorphs. At least that is the state at present: the family structure of spiders is having a grand overhaul and it is quite a job to keep up with the changes.

In the far south there is a genus *Ischnocolus* of small (say 25 mm or so) Theraphosid spiders. These are found (like most of the Mygalomorphs) under stones or in burrows. They are brownish, sometimes with chevrons on the abdomen and with a coat of fine smooth hair. Like all Theraphosidae they have scopulae on the tarsi and metatarsi and claw tufts surround the two claws on the tarsi. The red hairs surrounding the fangs in their resting position are characteristic of Theraphosids. To digress a minute the scopulae of the big arboreal Theraphosids found in the tropics enable them to walk up a vertical sheet of glass, turn round and walk down on the other side! However I would not expect the ground living European species to be able to do this. I have not seen *Ischnocolus* but Peter Harvey found two in the far south of Spain. I do not have any picture of a European *Ischnocolus* so I include a picture of a typical *Ischnocolus*, *I. maroccanus* from Morocco (Fig. 8).

In Gibraltar and nearby Spain there is a Hexathelid, *Macrothele calpeiana* (Plate I, Figure 1). This spider should be regarded with caution, another member of the family is the Sydney funnel web spider *Atrax robustus*. The spider lives in a rather vague funnel web among or under stones. It appears quite aggressive and will stand its ground, raising its carapace preparatory to unfolding its fangs ready to bite! There is another species *M. cretica* in Crete. The spinners of *Macrothele* species are very long and wrap themselves round the base of the abdomen in a characteristic fashion.



Figs 1-8. For caption see page 72.



Figs 9-17. For caption see page 72.



Figs 1-22, pages 70-72. 1 *Latrodectus* sp. 2 *Argyrodes argyrodes*. 3 *Zoropsis spinimana*. 4 *Olios argelasius*. 5 *Cyrtocarenum* sp. 6 Trap-door of *Cyrtocarenum* sp. 7 *Nemesia dubia* female. 8 *Ischnocolus maroccanus* (photograph by Peter Kirk). 9 *Hersiliola macullulata*. 10 *Tama edwardsi*. 11 *Loxosceles rufescens*. 12 *Uroctea durandi*. 13 Web and retreat of *Uroctea durandi*. 14 *Argiope trifasciata*, female with male in web above her. 15 *Filistata insidiatrix*. 16 Web of *Filistata insidiatrix*. 17 *Cyrtophora citricola*. 18 *Stegodyphus lineatus*. 19 *Palpimanus gibbulus*. 20 Web of *Stegodyphus lineatus*. 21 *Peucetia arabica*. 22 Retreat of *Zodarion* sp.

The Nemesiidae, Ctenizidae and Cyrtachenidae are all trap-door spiders. They dig burrows of greater or lesser complexity and mostly finish the burrows with a trap-door. At night they push the door up a bit and sit just under it waiting for prey. Burrows are sometimes found without doors. I think that this is usually due to the doors having been pecked off by Hoopoes. If brought back home and installed in a pot full of sand or peat with a starter burrow sunk in it the spiders establish themselves in the burrows provided and make a trap door. However *Nemesia corsica* brought back last year from Corsica has made a sort of curtain or folding door to her burrow. The reason for this difference is not clear to me. Nemesiids which look much the same and are the same size have made trap doors. Nemesiid males have mating hooks on the first pair of legs.

These three trap door families used to be classed together as Ctenizidae. The Nemesiidae differ from the Ctenizidae as now defined because they have scopulae and the fovea is recurved. Also they tend, in my experience, to be patterned. The Ctenizidae

have a procurved fovea and no scopulae. There are also other differences but they are difficult to see in the field. *Cyrtocarenum* is a typical Ctenizid genus (Figs 5 and 6). I have not seen a European cyrtachenid and I doubt if they are easily found. The cyrtachenid that I have from Kenya does not make a trap door but has a permanently open entrance to her burrow.

Now I will move on to the Araneomorphae. Some of the Araneomorphs have an extra spinning plate—the cribellum—in front of the other spinners. They also have a comb of stiff hairs—the calmistrum—on the metatarsus of the fourth pair of legs. The silk from the cribellum is combed out by the calmistrum to give a very adhesive, fluffy, blueish silk. It used to be considered that the presence or absence of the cribellum and calmistrum defined entirely different groups of spiders. Nowadays it is considered that many of the e-cribellate spiders are descended from cribellate ancestors and the presence of a cribellum no longer determines a major division. A pity because the cribellum is often easy to see! Hunting spiders are nearly all e-cribellate.

The Filistatidae have very long palps rather like those of Theraphosids. They live in holes in banks and trees and lay a calmistrated web of radiating threads against the surface. This catches crawling creatures such as ants, woodlice, etc. *Filistata insidiatrix* is the common European species (Figs 15 and 16).

*Loxosceles rufescens* (Loxoscelidae) is the common European *Loxosceles* species (Fig. 11). They are found underneath stones in a vague blueish web which looks calamistrated though it is not. They are six-eyed spiders with their eyes arranged in a characteristic pattern (see Fig. 23). *Scytodes* species (Scytodidae) also have this eye arrangement but they are heavily patterned and the eyes are not so noticeable. *Loxosceles* species are considered dangerous and may not be brought into the country alive without special permission. Congeners in the Americas seem to be somewhat synanthropic and have nasty bites which cause long-lasting sores.

Palpimanidae is an interesting family. In Europe I have seen *Palpimanus gibbulus* (Fig. 19) and *P. orientalis*. These two species can only be told apart under the microscope. They have very heavy front legs with scopulae somewhat on the outside of the tarsi. These legs they seem to use almost like antennae to feel their way. The spiders are found under stones and are slow moving. In captivity they proved difficult to feed. Then one day in Corfu we found one in the cell of a male Salticid. To our surprise the Salticid was being eaten and

not the *Palpimanus*. In fact *Palpimanus* is a specialist spider eater. On Cephalonia the turning of a stone revealed *Palpimanus orientalis* eating the much larger *Tegenaria agrestis* (Plate I, Fig. 2). She had somehow entered the *Tegenaria*'s retreat and killed her. In captivity they prey on most spiders. I have noticed that predatory creatures do seem to be rather unwary and to make easy prey for predators possessed of a suitable strategy.

Eresidae are cribellate spiders and make webs for prey catching. *Eresus niger* is found in Britain though it is very rare. However in the south of Europe *Eresus* species are fairly common. This is a genus that needs sorting out and there are probably

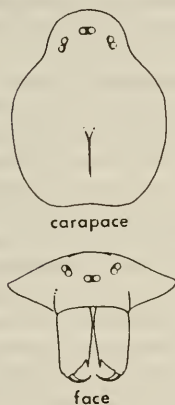


Fig. 23. Carapace of *Loxosceles* sp. after Levi.

several different species. The females are a velvety black sometimes with red on the head or the abdomen. The male is much smaller and commonly bright red with four black dots on the abdomen and a black head. *Eresus* is usually found in a shallow burrow under a stone with a funnel of pinkish cribellate silk. *Stegodyphus lineatus* (Fig. 18) is another European member of this family. They build a large, more or less vertical meshed sheet web (Fig. 20) between low shrubs or shrublets with a cornucopia shaped retreat nearby. My husband once found a female in one of these retreats with seven males! He asked me if I felt deprived. The genus *Stegodyphus* has recently been reviewed by Otto and Margaritte Kraus and *S. lineatus* was found, in spite of its variable colouring, to be the only European species.

Oecobiidae is one of the families that as now defined contains both cribellate and e-cribellate members. The latter were formerly called Urocteidae. *Oecobius* is a small spider about 3 mm long. She builds on the underside of a stone. The structure is a double sheet web with a number of entrances and the spider lives between the two sheets. *Oecobius*, though in captivity she will take other food, is an ant specialist. *Uroctea* is a much larger e-cribellate spider, perhaps 15 mm long, black often with four or five white or golden spots on the abdomen. The web is similar in structure to that of *Oecobius* only much larger (Fig. 13). A trip thread can be seen stretching for quite a distance. Presumably these spiders feed on ants, woodlice and other insects which crawl over the stone. I have found *Uroctea* difficult to keep alive in captivity.

Hersiliidae is a tropical family. In Kenya we saw them on tree trunks, motionless, waiting for prey. It was a great surprise to find them in Spain on the Costa del Sol. It seems that 5 million or so years ago Europe was joined to Africa at Gibraltar and presumably this explains the residual African fauna and flora in this region. Both *Tama edwardsi* (Fig. 10) and *Hersiliola* (Fig. 9) were living and presumably hunting on the underside of stones. Actually we found *Hersiliola* first and as it has its long spinners hidden by an overhanging abdomen it took us some time to place it. *Hersiliola* makes a curious retreat, unlike any other that we have seen. The spider attaches small stones (or similar objects) to short (between 5 mm and 10 mm long) silk threads. These hang down all round the spider and presumably signal the arrival of prey or predators. It may also hamper predators. Hersiliids catch their prey by holding their very long spinners above the prey and whizzing rapidly round with the spinners at the centre of motion. The Oecobiids behave in exactly the same way although they have the prey partially held by the web.

The Theridiidae are a well known British family and there is nothing particularly interesting about *Latrodectus* species (Fig. 1) except their dangerous venom. One may not bring *Latrodectus* species (black widows) back into the country alive without special permission. The spiderlings are rather pretty with their 13 red, white-surrounded dots. The adult females may or may not lose all colour, including the red hour-glass mark on the ventral surface of the abdomen. The genus is one of the (many) spider genera which need sorting out and I suspect that there are several species in Europe though *L. tredecimguttatus* is the best known. More interesting are the kleptoparasites belonging to the genus *Argyrodes* (Fig. 2). These are found in the webs of other spiders, often on a few threads that they have attached to the web of the owner. They are frequently silvery and oddly shaped. They share the food caught by the owner of the web or steal unconsidered trifles or even eat the owner. *Argiope bruennichi* may have half a dozen *Argyrodes* in her web.

Talking of *Argiope* there are two other species of these large handsome araneids to be found in Europe, namely *A. lobata* and *A. trifasciata* (Fig. 14). We have seen all three of these spiders on a small scruffy beach just south of Ibiza Town, Ibiza. *Argiope* is one of the genera which have miniature males. These males may mature much sooner than their sisters.

Another interesting araneid is *Cyrtophora citricola* (Fig. 17). This spider builds a very different kind of web. The orb web is horizontal and has such a fine pitch that it looks like netting. It is not sticky. The threads of the superstructure pull the centre of the web up into a retreat where the spider rests, often with a leaf for camouflage. In Africa these spiders often build their webs colonially and the structure may be built up to reach the telephone wires but such colonies are not found and presumably are not viable in Europe.

The big Lycosids of southern Europe are the other spider group which lives in burrows, they tend to finish these burrows with some sort of parapet and do not make trap doors though they sometimes silk over the burrow entrance. I normally carry a small mirror in the field and I was using this to see into a Lycosid burrow when I noticed that the moving spot of reflected sunlight interested the spider and she came up to the top! The big *Lycosa* species have striking black and white stripes on the underside of the legs and bright orange and black patterns on the ventral surface of the abdomen. The colour plate (Plate 1, Fig. 3) shows the famous (or infamous) *Lycosa tarantula*. The dorsal pattern is typical of Lycosidae, being much like that of our *Alopecosa accentuata*.

There is one Oxyopid in Britain but several more in Europe including the beautiful green *Peucetia* species (Fig. 21). These are hunters of the sit-and-wait variety. They are often found on slightly sticky aromatic plants and appear to feed mainly on caterpillars.

The Zodariidae were added to the British list by Peter Harvey who found *Zodarium italicum* living in a chalk pit at Grays, Essex. These spiders are probably fairly common in Europe but as they normally spend all day in their little 'igloos' (Fig. 22) only emerging to feed at dusk on sleepy ants they are not often seen.

The *Zoropsis* species (Fig. 3) used to have their own family, Zoropsidae but now are (rather oddly) placed in the Zoridae. *Zoropsis* are cribellates but make little, if any, use of silk for prey capture. In captivity they simply grab their prey. They do however use cribellate silk for making egg sacs. Generally the egg sacs are placed between two flat stones in cells which are large enough to house the female who remains on guard. Nevertheless the larva of *Mantispa styriaca* manages to enter the egg sac, consume the eggs and complete its development in the egg sac.

The Heteropodidae are represented in this country by *Micrommata virescens* but in southern Europe there are *Olios argelasius* (Fig. 4) and *Eusparassus dufouri*, both large hunting spiders. They are often found in outside silk cells under stones. This family has scopulae on the tarsi and metatarsi which enable the spiders to run up and down reeds with great speed and in captivity they can even walk on the underside of the top of a plastic box in which they are kept.

I have only been able to mention a few spiders which for some reason struck me as particularly interesting or noticeable. I have even left out my favourite family, the Salticidae, in spite of the numerous and very colourful species in southern Europe. They are easy to recognize from the four large eyes on the front of the carapace. The handsome *Philaeus chrysops* male with his black carapace and red abdomen with a longitudinal black stripe is one of the most frequently noticed species in the Mediterranean area.

Further reading. As far as I know there are no books which give much information about the spiders of southern Europe. *A Guide to Spiders and their Kin* by H. W. & L. R. Levi, published by Golden Press, New York is a small inexpensive booklet which gives a remarkably good coverage of spiders and other arachnids, especially those of the northern hemisphere. *Die Schönsten Spinnen Europas Nach Farbfotos Erkant* by Jörg Wunderlich, published by Jörg Wunderlich has a number of photographs from southern Europe. The text is in German. *The Country Life Guide to Spiders of Britain and Northern Europe* by Dick Jones, published by Country Life

Books, includes some spiders which are found in southern Europe and so does the German book *Spinnen, beobachten—bestimmen* by Heiko Bellman published by Neumann-Neudamm.

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## SHORT COMMUNICATION

**New records of *Asindulum nigrum* Latreille (Diptera: Keroplatidae).**—The British status of this large (7–8 mm body length) entirely black gnat, which has an elongate proboscis and feeds at flowers on wetlands, was touched on by Chandler (1987) although an old Oxfordshire record by Hamm (1926) was overlooked then.

Surprisingly, new records have accrued each year since 1987. *A. nigrum* has been found at two new sites in Norfolk during the Nature Conservancy Council Survey of wetlands in East Anglia by Andrew Foster and Deborah Proctor, and the 1990 Winchester-based field meeting of the Diptera Recording Schemes disclosed its presence in the Itchen Valley, Hampshire.

The Norfolk sites are Mills Marsh, 27.vi.1988, male and female, (A. P. Foster) and 27.vi.–11.vii.88, male and two females, (water traps at same site); Woodbastwick NNR, 14.vii.1989, male, at *Oenanthe fistulosa* L. flowers (A. P. Foster). Previous flower feeding records have been from *Heracleum* or *Angelica* flowers (e. g. Morley, 1920). These sites are, in common with those in Hampshire mentioned below, peaty fenland in the flood plains of calcareous rivers.

In Hampshire it was first collected on 10.vii.1990 by John Dobson who found a male and two females by sweeping near the edges of cattle-grazed fields with a good variety of herbaceous vegetation on Winnall Moor, a wetland local nature reserve by the River Itchen just north of Winchester. This site was much frequented during the week because of the abundance of *Syneches muscarius* (F.) (Hybotidae) but no further examples of *A. nigrum* could be found. However, on 14.vii.1990, a similar lightly grazed site by the River Itchen near Ovington, where a few *S. muscarius* were also found, was worked and sweeping fen vegetation produced two males and a female of *A. nigrum* (A. E. Stubbs and P. J. Chandler).

Umbels were not available at these sites (*Angelica* was present but not yet in flower) although *Heracleum* was checked in nearby hedges at Winnall Moor. Examination of other flowers of which meadowsweet (*Filipendula ulmaria* L.) was dominant, was unsuccessful during my visits. This was attributed to the hot and dry weather conditions.

These new discoveries suggest that *A. nigrum* should be sought more widely in wetland habitats although it has not been found by the extensive recent Nature Conservancy Surveys of such sites in Wales or Oxfordshire, despite the old record from the latter county mentioned above.—P. J. Chandler, Weston Research Laboratories, Vanwall Road, Maidenhead, Berkshire SL6 4UF.

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